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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,415

11/20/2006

Hideki Ohata

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

FANG, SHANE

ART UNIT

PAPER NUMBER

1796

NOTIFICATION DATE

DELIVERY MODE

03/26/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No. 10/573,415	Applicant(s) OHATA ET AL.	
	Examiner SHANE FANG	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,5,6 and 9-32 is/are pending in the application.
- 4a) Of the above claim(s) 12-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,5,6 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/09/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

- The amendment of claim 2 ($0.05 \leq m \leq 0.1$) has been found supported by the original claims and 0146-0160
- All previous rejections of claims 1, 3-4, and 7-8 have been rendered moot by cancellation.
- The previous 102 rejections of claims 2, 5-6, and 9 and 11 over Naitoh et al. have been overcome by amendment.
- The previous 102 rejections of claims 2, 5-6, and 9-11 over Jonas et al. have been overcome by amendment.
- The previous 102 rejections of claims 2, 5-6, 9, and 11 over Naarmann et al. have been overcome by amendment.
- The previous 103 rejections of claims 2, 5-6, 9, and 11 over Feldhues et al. in view of Naitoh et al. have been overcome by amendment.
- The previous 103 rejection of claim 10 over Naitoh et al. in view of Jonas et al. have been overcome by amendment.
- The previous 103 rejection of claim 10 over Naarmann et al. in view of Jonas et al. **maintained**, but the position has been modified.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 5-6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jonas et al. (US 4959430) listed on IDS and ISP.

As to claims 2, 5-6, 9-11, Jonas et al. discloses a (π -conjugated) copolymer of polythiophene-pyrrole having 65-98 mol% of thiophene unit and 2-35 mol% of pyrrole unit (by calculation 8:15-26). The thiophene unit can be 3,4-ethylenedioxythiophene (Ex.3), so the one of ordinary skill in the art would at once envisage the copolymer can comprise 3,4-ethylenedioxythiophene moiety and 2',5'- pyrrole moiety (out of two possibilities: 2',5' or 3'4'- pyrrole).

The pyrrole% is calculated as 2-35 mol%, overlapping with the claimed pyrrole% of 5-10 mol%. It has been found that where claimed ranges overlap ranges disclosed by the prior art, a *prima facie* case of obviousness exists - see MPEP 2144.05.

Jonas et al. is silent on the doped structure as recited in claim 2, but discloses an electrolysis process that is identical to the doping process described in instant specification [0053]. This process involves adding cations such as $(C_4H_9)_4N^+$ and counter ions such as PF_6^- under electric field (11:5-30, Table).

The reference further teaches copolymerization with polypyrrole will stabilize the electrical properties and improve mechanical properties without adverse effect of electrical properties (8:15-15). In light of this, one ordinary skill in the art would have expected the monomers, copolymer, and process disclosed by Jonas et al. to feature inherently feature the doped structures of claims 2, 5-6, and 9-10 and the electric

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conductivity as recited in claim 11, because Jonas et al. obviously satisfy all of the material and process limitations of the instant invention-see MPEP 2112.01.

3. Claims 2, 5-6, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naarmann et al. (US 4568483) listed on IDS and ISP.

As to claims 2, 5-6, 9, and 11, Naarmann et al. discloses a (π -conjugated) copolymer of polythiophene-pyrrole having thiophene unit and 1-99 mol% of pyrrole unit (3:24, Ex. 3) together with electrolysis that is identical to the doping process described in instant specification [0053]. This process involves adding cations such as $(\text{Bu})_3\text{N}^+$ (Ex. 3) and counter ions such as PF_6^- (3:63-65) under electric field (5: 60-65).

The pyrrole% is calculated as 1-99 mol%, overlapping with claimed pyrrole% of 5-10 mol%. It has been found that where claimed ranges overlap ranges disclosed by the prior art, a *prima facie* case of obviousness exists - see MPEP 2144.05.

The disclosed process identical to the doping process described in instant specification [0053] and monomers would inherently feature the doped structures recited in claims 2, 5-6, 9, and 11. In light of this, one ordinary skill in the art would have expected the monomers, copolymer, and process disclosed by Naarmann et al. to feature inherently feature the doped structures of claims 2, 5-6, and 9 and the electric conductivity as recited in claim 11, because Naarmann et al. obviously satisfy all of the material and process limitations of the instant invention-see MPEP 2112.01.

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4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naarmann et al. (US 4568483) in view of Jonas et al. (US 4959430) both listed on IDS and ISP.

Disclosure of Naarmann et al. is adequately set forth in ¶3 and is incorporated herein by reference.

Naarmann et al. is silent on the 3-4-ethylenedioxythiophene moiety as recited in claim 10.

Disclosure of Jonas et al. is adequately set forth in ¶4 and is incorporated herein by reference. Jonas et al. further discloses using 3-4-ethylenedioxythiophene monomers would have lower rate of self-discharge and can be cyclised more frequently and increase stability to enable polythiophene to be used in aqueous electrolytic systems (6:55-65).

Therefore, as to claim 10, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the (π -conjugated) copolymer of polythiophene-pyrrole disclosed by Naarmann et al. and replace thiophene moiety with 3-4-ethylenedioxythiophene in view of Jonas et al. The resultant polymer would have lower rate of self-discharge, so can be cyclised more frequently. Increase stability would also be obtained to enable the resultant polymer to be used in aqueous electrolytic systems.

Response to Arguments

The argument for allowance of amended claims has been fully considered but not persuasive.

Applicant's arguments with respect to amended range that overcomes previous 102 and 103 rejections (P.14-16) have been considered but are moot in view of the new ground(s) of rejection. See above for the new ground rejections. For further prosecution, the examiner has the following comments:

The applicant also argued Janos et al. shows no examples (P.15, ¶4). Note Janos et al. disclosed overlapping range (see above action). Working examples are not required, and the entire disclosure of the reference must be considered. Compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, does not turn on whether an example is disclosed. An example may be "working" or "prophetic." A working example is based on work actually performed. A prophetic example describes an embodiment of the invention based on predicted results rather than work actually conducted or results actually achieved. See MPEP- 2164.02.

The applicant also argued unexpected results comparing 3-4-ethyleneioxy thiophene-pyrrole copolymers with 10, 5, and 30 mol% of pyrrole (P.17, ¶2). Unexpected results must, in actuality, be unexpected. As shown in Table 5, the capacitor prepared via copolymer having 30 mol% of pyrrole (outside claimed range of 5-10 mol%, Ex. 15) shows improved lower leakage current under the humidity test (reliability test) than Ex. 5 and Ex. 14 prepared via copolymer having claimed range of pyrrole (5 mol% and 10 mol%). Moreover, no benchmark has been shown over the

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references (2-35 mol% by Janos et al. and 1-99 mol% by Naarmann et al., particularly the end point of 2% by Janos et al. and 1% by Naarmann et al.) vs. claimed invention. Thus, the examiner has found the applicant fails to show unexpected results,

Therefore, one of ordinary skill in the art would be motivated to develop the present invention in view of Janos et al. or combining Naarmann et al. and Janos et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHANE FANG whose telephone number is (571)270-7378. The examiner can normally be reached on Mon.-Thurs. 8 a.m. to 6:30 p.m. EST.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sf

/RANDY GULAKOWSKI/
Supervisory Patent Examiner, Art Unit 1796